

We claim:

1. A method of forming a protective coating upon a substrate subject to abrasion, the method comprising:
 - printing upon the substrate a plurality of dots with spaces of exposed substrate therebetween; and
 - curing the plurality of dots to harden the plurality of dots into a protective coating, wherein the spaces between the dots permit flexibility of the substrate without damage to the plurality of dots.
2. The method as claimed in claim 1, wherein printing upon the substrate includes screen printing the plurality of dots upon the substrate.
3. The method as claimed in claim 1, wherein the substrate is a polyester-polycarbonate alloy.
4. The method as claimed in claim 1, wherein the plurality of dots are in a stochastically-generated arrangement.
5. The method as claimed in claim 1, wherein printing upon the substrate includes printing a repeating stochastically-generated dot arrangement.
6. The method as claimed in claim 1, wherein curing the plurality of dots includes exposing the plurality of dots to ultraviolet light.
7. The method as claimed in claim 1, wherein curing the plurality of dots includes heating the plurality of dots with a heater.
8. The method as claimed in claim 1, wherein the protective coating is substantially transparent.

9. The method as claimed in claim 1, wherein the printing step is a second surface printing step.

10. The method as claimed in claim 1, wherein the substrate is a light-transmitting substrate.

11. The method as claimed in claim 1, further comprising printing at least one of text, a pattern, and graphics upon the substrate.

12. The method as claimed in claim 11, wherein printing at least one of text, a pattern, and graphics upon the substrate occurs prior to printing the plurality of dots upon the substrate.

13. The method as claimed in claim 12, wherein the plurality of dots and the at least one of text, a pattern, and graphics are printed on a same side of the substrate.

14. The method as claimed in claim 11, wherein the plurality of dots and the at least one of text, a pattern, and graphics are printed on opposite sides of the substrate.

15. The method as claimed in claim 1, further comprising soft curing the plurality of dots to generate stipple thereon.

16. The method as claimed in claim 15, wherein soft curing the plurality of dots includes exposing the plurality of dots to low-wattage ultraviolet light bulbs and a flow of gas over the plurality of dots.

17. The method as claimed in claim 1, wherein the dots have an average size of between 50 and 150 microns.

18. The method as claimed in claim 1, wherein the dots have an average size of between 80 and 100 microns.

19. The method as claimed in claim 1, wherein the dots have an average size of about 90 microns.

20. The method as claimed in claim 1, wherein printing the plurality of dots includes covering between 20% and 70% of the printed substrate.

21. The method as claimed in claim 1, wherein printing the plurality of dots includes covering between 20% and 40% of the printed substrate.

22. The method as claimed in claim 1, wherein printing the plurality of dots includes covering about 25% of the printed substrate.

23. A first surface protective coating for a substrate, comprising a layer of cured material printed upon the substrate, the layer of cured material defined by a plurality of dots stochastically printed upon the substrate and substantially separated from one another by substantially exposed areas of the substrate to permit flexibility of the substrate without damage to the protective coating.

24. The first surface protective coating as claimed in claim 23, wherein the substrate is a light-transmissive substrate.

25. The first surface protective coating as claimed in claim 23, wherein the substrate has at least one of text and graphics printed upon a second surface of the substrate.

26. The first surface protective coating as claimed in claim 23, wherein the layer of cured material is substantially transparent.

27. The first surface protective coating as claimed in claim 23, wherein the layer of cured material is a screen-printed layer of cured material.

28. The first surface protective coating as claimed in claim 23, wherein the plurality of dots includes a stochastically-generated pattern of dots repeated upon the substrate.

29. The first surface protective coating as claimed in claim 23, wherein the substrate and protective coating are formable without damage to the layer of cured material on the substrate.

30. The first surface protective coating as claimed in claim 23, wherein the substrate is comprised of a polyester-polycarbonate alloy.

31. The first surface protective coating as claimed in claim 23, wherein the plurality of dots have stipple thereon.

32. The first surface protective coating as claimed in claim 23, wherein the dots have an average size of between 50 and 150 microns.

33. The first surface protective coating as claimed in claim 23, wherein the dots have an average size of between 80 and 100 microns.

34. The first surface protective coating as claimed in claim 23, wherein the dots have an average size of about 90 microns.

35. The first surface protective coating as claimed in claim 23, wherein the dots cover between 20% and 70% of the printed substrate.

36. The first surface protective coating as claimed in claim 23, wherein the dots cover between 20% and 40% of the printed substrate.

37. The first surface protective coating as claimed in claim 23, wherein the dots cover about 25% of the printed substrate.

38. A method of manufacturing a product having a protective coating, the method comprising:

printing a plurality of dots upon a substrate, the plurality of dots having spaces therebetween;

curing the plurality of dots into a hardened protective coating on the substrate;

forming the substrate to a desired shape of the product; and

flexing the hardened protective coating by the spaces between the dots while forming the substrate.

39. The method as claimed in claim 38, wherein printing the plurality of dots includes screen printing the plurality of dots.

40. The method as claimed in claim 38, wherein the dots are substantially separated from one another by the spaces.

41. The method as claimed in claim 38, wherein printing the plurality of dots includes repeatedly printing a pattern of dots.

42. The method as claimed in claim 41, wherein the pattern of dots is a stochastically-generated pattern.

43. The method as claimed in claim 38, wherein the hardened protective coating is substantially transparent.

44. The method as claimed in claim 38, wherein the substrate is a sheet of plastic material.

45. The method as claimed in claim 44, wherein the plastic material is a polyester-polycarbonate alloy.

46. The method as claimed in claim 38, wherein the substrate is light-transmissive.

47. The method as claimed in claim 38, further comprising printing at least one of text, a pattern, and graphics upon the substrate.

48. The method as claimed in claim 47, wherein printing at least one of text, a pattern, and graphics upon the substrate occurs prior to printing the plurality of dots upon the substrate.

49. The method as claimed in claim 48, wherein the plurality of dots and the at least one of text, a pattern, and graphics are printed on a same side of the substrate.

50. The method as claimed in claim 47, wherein the plurality of dots and the at least one of text, a pattern, and graphics are printed on opposite sides of the substrate.

51. The method as claimed in claim 38, wherein curing the plurality of dots includes exposing the plurality of dots to ultraviolet light.

52. The method as claimed in claim 38, wherein curing the plurality of dots includes heating the plurality of dots with a heater.

53. The method as claimed in claim 38, wherein the step of forming the substrate is performed in a mold.

54. The method as claimed in claim 38, further comprising:
partially curing the plurality of dots prior to curing the plurality of dots; and
forming stipple upon the plurality of dots while partially curing the plurality of dots.

55. The method as claimed in claim 54, wherein:
partially curing the plurality of dots includes exposing the plurality of dots to a flow of nitrogen gas and to ultraviolet light; and
curing the plurality of dots includes exposing the plurality of dots to ultraviolet light having a lower intensity than the ultraviolet light used to partially cure the plurality of dots.

56. The method as claimed in claim 38, wherein the dots have an average size of between 50 and 150 microns.

57. The method as claimed in claim 38, wherein the dots have an average size of between 80 and 100 microns.

58. The method as claimed in claim 38, wherein the dots have an average size of about 90 microns.

59. The method as claimed in claim 38, wherein printing the plurality of dots includes covering between 20% and 70% of the printed substrate.

60. The method as claimed in claim 38, wherein printing the plurality of dots includes covering between 20% and 40% of the printed substrate.

61. The method as claimed in claim 38, wherein printing the plurality of dots includes covering about 25% of the printed substrate.